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## ABSTRACT

A sulfate process for producing titania from a titaniferous material is disclosed. The process includes leaching the titaniferous material and producing a leach liquor, separating titanyl sulfate from leach liquor, hydrolysis of the extracted titanyl sulfate, and thereafter calcining the solid phase produced in the hydrolysis step. The process is characterised by controlling the hydrolysis step and forming a selected particle size distribution of hydrated titanium oxides from titanyl sulfate.